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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

DANG, HUNG Q

ART UNIT PAPER NUMBER

2635

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/820,065

Applicant(s)

DUBINSKY ET AL.

Examiner

Hung Q Dang

Art Unit

2635

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2004.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-33 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. This communication is in response to applicant's response received on 7/13/2004.

#### ***Response to Arguments***

2. Applicant's arguments with respect to the rejection(s) of claim(s) 1 and 23 have been fully considered and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of U.S. Patent 6,697,298.

#### ***Double Patenting***

3. Claims 1-33 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 6,697,298. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims are generally broader than the claims in U.S. Patent 6,697,298. Broader claims in a later application constitute obvious double patenting of narrow claims in an issued patent. See *In re Van Ornum and Stang*, 214, USPQ 761, 766, and 767 (CCPA) (the court sustained an obvious double patenting rejection of generic claims in a continuation application over narrower species claims in an issued patent); *In re Vogel*, 164 USPQ 619, 622, and 623 (CCPA 1970) (generic application claims specifying "meat" is obvious double patenting of narrow patent claims specifying "pork").

4. Claims 1, 2, 5, 11, 23, 24 and 29 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,697,293. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

**Regarding claim 1**, claims 1 of this application claim an acoustic telemetry apparatus for transmitting signals from a first location within a well borehole to a second location comprising:

- a) an elongated member having a **longitudinal bore**;
- b) a reaction mass movably disposed on the elongated member; and
- c) an actuator coupled to the elongated member and the reaction mass at the first location within the well borehole, the actuator actuated to induce an axial reciprocating movement of reaction mass relative to the elongated tube, whereby the reciprocating movement causes an acoustic wave to transmit into the elongated member, the acoustic wave being indicative of the signal.

Claim 1 of U.S. Patent 6,697,298 also claims an acoustic telemetry apparatus for transmitting signals from a first location within a well borehole to a second location comprising:

- a) an elongated member (extending from within the borehole to the surface location, the elongated member being substantially free to move axially toward the surface and capable of carrying acoustic waves there-through);
- b) a reaction mass disposed adjacent to the lower end of the elongated member;

c) an actuator coupled to the elongated member and the reaction mass, the actuator exerting axial force on the elongated member and the reaction mass at a predetermined frequency, whereby the reaction mass causes the substantial portion of the axial force to transmit into the elongated member at the predetermined frequency.

Even though, claim 1 of U.S. patent 6,697,298 does not specifically mention said elongated member has a **longitudinal bore**, however, the claimed limitations “the elongated member....capable of **carrying acoustic waves there-through**” and “whereby the reaction mass causes the substantial portion of the axial force to transmit into the elongated member at the predetermined frequency” implies that said elongated member has a longitudinal bore so that a signal can be transmitted **into** the elongated member. Therefore, it would have been obvious to one of ordinary skill in the art to provide an elongated member having a longitudinal bore to the acoustic telemetry apparatus disclosed by U.S. Patent 6,697,298 in order to transmit the actuated signal.

**Claim 23** is rejected for the same reasons as claim 1.

**Claims 2 and 24** are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 10 of U.S. Patent No. 6,697,298. Claim 10 of U.S. Patent 6,697,298 also claims a controller for controlling the acoustic actuator.

**Claim 5** is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 3 of U.S. Patent No. 6,697,298. Claim 3 of U.S. Patent 6,697,298 also claims that the elongated member is selected from a group consisting of (i) a drill pipe; (ii) a coiled tubing; and (iii) a production tube.

**Claims 11 and 29** are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,697,298. Claim 1 of U.S. Patent 6,697,298 also claims oscillation at a predetermined frequency.

5. Claims 3, 4, 25 and 26 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,697,298 in view of Bedenbender et al. U.S. Patent 4,519,053.

**Regarding claims 3 and 25**, Claim 1 of U.S. Patent 6,697,298 teaches an acoustic telemetry apparatus as claimed in claim 3, except teaching a displacement sensor for sensing a position of the reaction mass relative to the elongated member.

Bedenbender et al., in the same field of endeavor, teaches an acoustic telemetry apparatus, which includes a displacement sensor for sensing a position of the reaction mass (Figure 2, unit 88) relative to the elongated member (column 7, lines 56-67 and Figures 2 and 8).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a displacement sensor for sensing a position of the reaction mass (Figure 2, unit 88) relative to the elongated member of the apparatus claimed in claim 1 of U.S. Patent 6,697,298, as evidenced by Bedenbender et al., in order to subsequently control the actuator.

**Regarding claims 4 and 26**, Bedenbender et al. also teaches a controller (Figure 8 unit 142), a displacement sensor and a feedback loop (Figure 8 unit 136)

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connected to the sensor and controller for conveying an output of the displacement sensor to the controller, the conveyed output at least partially determinative of controller actions in controlling the actuator (column 7, lines 56-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a displacement sensor and a feedback loop connected to the sensor and controller to the apparatus claimed by claim 1 of U.S. Patent 6,697,298, as evidenced by Bedenbender et al., in order to control the actuator.

6. Claims 6-8, 12 and 30 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,697,298 in view of Paulsson U.S. Patent 4,715,470.

**Regarding claims 6 and 7**, as mentioned above, claim 1 of U.S. Patent 6,697,298 teaches an acoustic telemetry apparatus as claimed in claims 6 and 7, except wherein the actuator is a linear electromagnetic device.

Paulsson, in the same field of endeavor, teaches an acoustic telemetry apparatus, wherein the actuator is a linear electromagnetic device (column 3 lines 2047 unit 30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a linear electromagnetic actuator coupled to the reaction mass and to the elongated tube of the apparatus claimed by claim 1 of U.S. Patent 6,697,298, as evidenced by Paulsson, to actuate the reaction mass in order to generate a data signal.

**Regarding claim 8**, Paulsson also teaches at least two electromagnetic devices, wherein the first electromagnetic device (column 4 lines 2942 and Figure 3 units 130 and 230) being coupled to the reaction mass at a third location and the second electromagnetic device being coupled to the reaction mass at a fourth location spaced apart from the third location.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide at least two electromagnetic actuators to the apparatus claimed in claim 1 of U.S. Patent 6,697,298, as evidenced by Paulsson, in order to actuate said reaction mass.

**Regarding claims 12 and 30**, even though claim 1 of U.S. Patent 6,697,298 does not specifically teach that the reciprocating movement is an oscillation at a resonant frequency, however, one skilled in the art would recognize that wave oscillates best at resonant frequency. Therefore, it would have been obvious to provide reciprocating movement at a resonant frequency to the apparatus claimed in claim 1 of U.S. Patent 6,697,298 in order to achieve optimal result.

7. Claims 9, 13, 14, 18-22, 27, 28 and 31 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,697,298 in view of Petersen et al. U.S. Patent 4,314,365.

**Regarding claims 9 and 28**, claim 1 of U.S. Patent 6,697,298 does not specifically teach the actuator is coupled to the reaction mass with a biasing element.



Petersen et al., in the same field of endeavor, teaches an acoustic telemetry apparatus for transmitting signals from a first location within a wellbore to a second location, wherein the actuator (Figure 7, unit 234) is coupled to the reaction mass (Figure 7, unit 232) with a biasing element (Figure 7, unit 238).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to couple the actuator and the reaction mass claimed in claim 1 of U.S. Patent 6,697,298 with a biasing element, as evidenced by Petersen et al., so that the actuator can be actuated against the reaction mass to produce a signal to be transmitted into the elongated member.

**Regarding claims 13, 14, 27 and 31**, the actuator disclosed by Petersen et al. is also a fluid control device (column 8 lines 27-38). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a fluid control device as an actuator disclosed in claim 1 of U.S. Patent 6,697,298, as evidenced by Petersen et al., in order to actuate the actuator. The fluid control device disclosed by Petersen et al. is also a fast operating valve (column 8 lines 27-38).

**Regarding claim 18**, the fluid control device disclosed by Petersen et al. is also a variable flow restrictor (column 8 lines 27-38). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a variable flow restrictor as the fluid control device to the apparatus disclosed by claim 1 of U.S. Patent 6,697,298, as evidenced by Petersen et al., in order to variably control the flow said fluid control device.

**Regarding claims 19 and 20**, poppet valve and pilot valve have been commonly known and used in hydraulic systems to control fluid movement. Therefore, by conventionality, it would have been obvious to apply poppet and pilot valves to the apparatus disclosed by claim 1 of U.S. Patent 6,697,298 in view of Petersen et al.

**Regarding claims 21 and 22**, the first passageway (Figure 4) disclosed by Petersen et al. is also a substantially annular space between the reaction mass and the elongated member and extending at least partially along the length of the reaction mass (Figure 4, unit 232). Said passageway is also a central bore extending through the reaction mass (Figure 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the indicated passageway to the apparatus disclosed by claim 1 of U.S. Patent, as evidenced by Petersen et al., in order for the actuated signal to be transmitted.

8. Claims 10, 15-17 and 32 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,697,298 in view of Petersen et al. U.S. Patent 4,314,365 and in further view of Silverman U.S. Patent 3,934,673.

**Regarding claim 10**, claim 1 of U.S. Patent 6,697,298 in view of Petersen et al. teaches the apparatus as claimed in claim 10, except wherein the biasing element is at least one spring element.

Silverman, in the same field of endeavor, teaches a spring element as a biasing element (column 5 lines 54-67) connecting to the actuator.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a spring as a biasing element coupled to the actuator of the apparatus disclosed by claim 1 of U.S. Patent 6,697,298 in view of Petersen et al., as evidenced by Silverman, in order to resiliently actuate said actuator against the reaction mass.

**Regarding claims 15-17, 32 and 33,** as mentioned above, claim 1 of U.S. Patent 6,697,298 in view of Petersen et al. teaches an acoustic telemetry apparatus including a valve as claimed in claim 15, however, claim 1 of U.S. Patent 6,697,298 in view of Petersen et al. does not teach that said valve is a rotating valve. One skilled in the art would recognize that rotating valve has been commonly used in such hydraulic system, as evidenced by Silverman. Silverman teaches an acoustic telemetry apparatus, wherein a rotating valve is utilized to control a hydraulic system, wherein said rotating valve is driven by a motor (column 5 lines 54-67), and wherein said motor is a synchronous motor (column 4 lines 55-60).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a rotating valve controlled by a synchronous motor to the apparatus disclosed by claim 1 of U.S. Patent 6,697,298 in view of Petersen et al., as evidenced by Silverman, in order to synchronously control the hydraulic system disclosed by claim 1 of U.S. Patent 6,697,298 in view of Petersen et al.

### Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Q Dang whose telephone number is (571) 272-3069. The examiner can normally be reached on 9:30AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Horabik can be reached on (571) 272-3068. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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